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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/922,087 | 08/06/2001 | Toby J. Miles | 84185 2803TAL | 8730 |

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| EXAMINER |
|---|
| DAVIS, OCTAVIA L |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2855 | |

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AM

# Office Action Summary

| Application No. | Applicant(s) |
|---|---|
| 09/922,087 | Miles et al |
| **Examiner** | **Art Unit** |
| Octavia Davis | 2855 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Dec 2, 2002*.

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above, claim(s) *4, 6, 27, and 29* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3, 5, 7-26, 28, and 30-38* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

Serial Number: 09/922, 087

Art Unit: 2855

2/20/03

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract is objected to because of the legal phraseology terms " means" on lines 4, 6, 7 - 10, 12 and 14.

***Claim Rejections - 35 USC § 112*** Page 3

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 - 3, 5, 7 - 26, 28 and 30 - 38 are rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

Claims 1, 14 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Newly independent claims 1, 14 and 24 contain the new matter " a drive arm " and " said drive arm being located to one side of the said one of the first and second clamping means to apply the high cycle load transversely to the low cycle load ".

## *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 - 3, 5, 7, 10, 15 - 17, 21 - 23, 25, 26, 28, 30 and 36 - 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owen et al in view of Gram.

Regarding claim 1, Owen et al disclose a fatigue testing device comprising a frame, first and second clamping means 18 for holding a specimen, mounting means 14 to mount the first and second clamping means 18 on the frame, the mounting means isolating the clamping means from the frame, means for removing a respective clamping means ( See Col. 6, lines 61 - 66 ), means for measuring the low cycle load, vibration excitation means 36 coupled to a respective clamping means 18, means for measuring a high cycle load ( See Col. 8, lines 15 - 44 ) detector 62 means detecting vibration of the specimen 18 and control means 31 determining a resonant frequency of the specimen from an electrical signal and sending a signal to the vibration excitation means ( See Cols. 8 and 10, lines 1 - 5 and 58 - 64 ) but does not disclose the actuator being acoustically coupled to one of the first and second clamping means through a drive member having a stiffness, the mass of the drive member and the actuator having a natural resonant frequency close to the resonant frequency of the specimen. However, Gram disclose a material testing apparatus comprising an actuator 28 being acoustically coupled to one of a first and second clamping means 20, 22 through a drive member 92 having a stiffness, the mass of the drive member and the actuator 28 having a natural resonant frequency close to the resonant frequency of specimen 26 ( See Cols. 2, 3, 6 and 8, lines 65 - 68, 1 - 35, 30 - 38 and 37 - 52, See Figs. 1, 2 and 4 ).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Owen et al according to the teachings of Gram for the purposes of, loading a test specimen held in grip means and providing a spring force, which tends to open up a flexing member provided with the grip means, thus flexing portions of a respective grip.

Regarding claims 2 and 25, in Owen et al, the mounting means 14 comprises a network of springs and masses ( See Col. 5, lines 62 - 67 ).

Regarding claims 3 and 26, in Owen et al, the resonant frequency of the mounting means 14 is selected.

Regarding claims 5 and 28, in Owen et al, an actuator 16 generates frequencies in a specific range ( See Col. 9, lines 1 - 7 ).

Regarding claims 7 and 30, in Owen et al, the vibration excitation means 36 comprises a piezoelectric actuator 16 ( See Col. 8, lines 9 - 44 ).

Regarding claim 10, in Owen et al, an electrical insulating means electrically insulates the frame from the specimen ( See Fig. 2 ).

Regarding claims 21, 22, 36 and 37, in Owen et al, a determination is made of the amount of energy required to vibrate the specimen at a predetermined amplitude of vibrations ( See Col. 8, lines 1 - 14 ).

Regarding claims 15 and 16, in Owen et al, a tensile load and expansion is capable of being applied to the specimen ( See Col. 8, lines 56 - 67 ).

Regarding claim 17, the specimen has a specific shape ( See Fig. 2 ).

Regarding claims 23 and 38, Owen et al lacks the specimen undergoing a damping treatment. However, in Gram, the specimen 26 undergoes a damping treatment ( See Col. 3, lines 1 - 9 ). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Owen et al according to the teachings of Gram for the purpose of, testing the damping force.

## *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 8, 9, 11 - 14, 18 - 20, 24 and 31 - 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owen et al and Gram, as applied to claims 1 - 3, 5, 7, 10, 15 - 17, 21 - 23, 25, 26, 28, 30 and 36 - 38 above, and further in view of Aubert.

Regarding claims 8, 9, 18, 20, 31, 32 and 35, Owen et al and Gram lack heating the specimen to oxidize and color the surfaces of the crack in the specimen, the heating means comprising a furnace surrounding the specimen. However, Aubert discloses heating the specimen to oxidize and color the surfaces of the crack in the specimen 10, the heating means comprising a furnace 12 surrounding the specimen (

See Col. 4, lines 26 - 34 ). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Owen et al and Gram according to the teachings of Aubert, for the purpose of, determining the temperature of a test piece at its crack tip accurately.

Regarding claims 11 - 14, 19, 24, 33 and 34, Owen et al and Gram lack probes arranged on opposite sides of a crack on the specimen, means for determining the crack growth rate in the specimen stopping the test and locating the crack, resuming the test and maintaining the vibrations at its resonant frequency and means for supplying electrical current through the specimen. However, Aubert discloses a device and process for the measurement of the extent and temperature of a crack at the surface of a body comprising means for determining the crack 11 growth rate in a specimen 10, stopping the test using means 27 and locating the crack, resuming the test and maintaining the vibrations at its resonant frequency ( See Cols. 3 and 4, lines 14 - 17 and 16 - 25 ) and means for supplying electrical current through the specimen. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Owen et al and Gram according to the teachings of Aubert for the purpose of, simultaneously measuring the extent and the temperature of an open crack at the surface of a specimen at the exact crack location.

***Response to Arguments***

8. Applicant's arguments with respect to claim have been considered but are moot

in view of the new grounds of rejection.

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number ( 703 ) 306 - 5896. The examiner can normally be reached on Monday - Thursday ( 9:00 - 5:00 ), alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is ( 703 ) 308 - 0956.

OD/2855

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800